

Faust Adds to Success of New Stent

Sponsored research conducted by Chemistry Prof. Rudy Faust has contributed to the performance of a new drug-coated coronary stent developed by Boston Scientific Corp. in Natick.

The company announced recently that clinical trials of the TAXUS™ stent for heart patients showed “extraordinary” results. Boston Scientific is waiting for federal approval to sell the device in the United States; it is currently the market leader in Europe, ahead of Johnson & Johnson, the only other company with a drug-coated stent. Projections put the worldwide market at \$4 billion by 2005.

Stents are small wire-mesh cylinders; they are threaded through blocked arteries in angioplasty procedures and the wire mesh locks open to prop open the arteries. Although bare metal stents were a significant advance over bypass surgery, nearly a third of patients experience a restenosis, or

narrowing, of the artery within some weeks of surgery.

“Coating the stent with an anti-proliferative drug helps prevents the restenosis of the artery,” explains Faust. (Boston Scientific uses the drug paclitaxel and in the clinical trial only 7.9 percent of patients showed signs of significantly narrowed arteries after the implant, compared to 26.6 percent in the control group) “But the drug must have a polymer carrier for retention of the drug on the stent.”

The polymer serves a number of purposes including stability of the stent coating during handling and deployment to the artery. It must perform its function without any cracking, flaking or delamination of the coating. Most importantly, from a biological standpoint, the polymer provides a controlled release of paclitaxel locally over a period of weeks, and the polymer must be very biostable, so that it doesn’t degrade in the body.

Faust has worked with Boston Scientific for three years, perfecting and developing production techniques for the polymer—specifically, a copolymer, produced by the living cationic polymerization process that Faust helped to pioneer.

Boston Scientific teamed up with Faust because he is recognized as one of the foremost experts in this technology. Faust and his research group, in collaboration with polymer scientists at Boston Scientific, were responsible for scaling up the polymer carrier, from the few grams that can be processed in a test tube to the commercial scale production that Boston Scientific would need for a product launch into worldwide markets.

Scaling up presents its own challenges: The polymer is produced in a cryogenic minus 90 C environment and is sensitive to moisture and air.

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Tsongas Center Awarded \$100K for River Education

More than 2,500 middle school children from Lowell and surrounding towns will now have access to more information about the Merrimack River, thanks to a \$99,590 grant awarded to the Tsongas Industrial History Center to expand its educational services from the Institute of Museum and Library Services (IMLS).

“This grant will allow the Tsongas Center and its partner, the Lowell National Historical Park, to organize a collaboration among local environmental organizations that provide exemplary educational after-school and community service programs,” said U.S. Representative Marty Meehan. “The extension of hands-on programs focusing on surface and groundwater issues will educate 2,500 additional students about our very valuable natural resource—the Merrimack River.”

The grant, combined with a \$45,000 matching grant provided by the Jesse B. Cox Trust, will expand teacher workshops and other outreach activities for the Merrimack Watershed hands-on program to middle schools in Chelmsford, Dracut, Lowell, Westford and other watershed communities. Additionally, the Center will organize a Greater Lowell Environmental Alliance and provide staff support to member organizations.



▲ Peter O'Connell

“This grant will enable us to bring together faculty and research staff from the University, classroom teachers and the staff of youth organizations in Greater Lowell. Together they will engage middle school students in studying the issues affecting air and water quality in the Merrimack Watershed,” said Peter O’Connell, director of the Tsongas Center.

Galizzi Receives Grant to Study Worker Injuries

Prof. Monica Galizzi, economics, has won a “Research Scientist Development Award” worth nearly \$250,000 from the Centers for Disease Control and Prevention’s National Institute for Occupational Safety and Health. Over the next three years, she will use the money to conduct a study of work-place injuries using a unique database known as the National Longitudinal Survey of Youth 1979 (NLSY79).

In 1979, the Department of Labor’s Bureau of Labor Statistics began tracking the employment experiences of nearly 12,000 teens and young adults. Every year or two, the bureau returns to these randomly selected subjects to learn more about their work lives, including items such as salary levels, on-the-job injuries and changes in marital status.

The survey project has proven to be a treasure-trove for labor economists because of its extraordinarily high retention rate. More than 66



▲ Prof. Monica Galizzi, economics, will spend the next three years conducting a study of work-place injury in the United States thanks to a \$250,000 “Research Scientist Development Award” she’s received from the Centers for Disease Control and Prevention’s National Institute for Occupational Safety and Health.

percent of the original subject pool responded in the latest survey round.

According to Galizzi, the data-rich resource boasts more than 90,000 measured variables.

“The data set is so huge,” says Galizzi, “you have to spend a lot of time just learning how to use it.”

Galizzi will get the opportunity to learn the NLSY79 as part of her study. She expects to be tapping into assistance offered by the Bureau of Labor Statistics to help learn how to translate questions and interpret results, although she’s done a significant amount of work with this type of data-set before.

The study, tentatively titled, “On-the-Job Injury: Employment History and Hidden Losses,” will present econometric research on the long-term economic consequences of being hurt in the workplace. Despite the intense research that has been conducted on the NLSY79, Galizzi said that no one has yet used it to look at worker injuries, which became a regular part of the survey in 1988.

During the grant period, Galizzi will spend much of her time on the study. In particular, she’ll be

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Take Note

Fund Raiser Features Performance by Irish Tenors

The Division of Fine Arts, Humanities and Social Sciences, in conjunction with the Lowell Memorial Auditorium, will present a performance by the Irish Tenors and a silent auction on Friday, Dec. 5, at the auditorium in Lowell.

Proceeds from the event will benefit the Dean's Scholarship Fund. Tickets are \$75—\$25 of which is tax deductible. The auction—which will feature art works and sports memorabilia—will begin at 6:30 p.m., and the Irish Tenors' performance will start at 8.

Tickets may be purchased by mail, telephone (ext. 4444) or in person at the Arts box office in Durgin Hall. Checks should be made payable to UMass Lowell.

New Exhibit Alphabetizes Art

Alphabet As Art, a multi-media group exhibition, will be open in the University Gallery from Nov. 12 through December. A reception will be held on Nov. 19 at 2 p.m. and will feature an edible type contest.

According to Prof. Karen Roehr, art, who's curating the exhibit, the roster of internationally known artists will include typographers Hermann Zapf and Matthew Carter; photographer Abelardo Morell; painter Melissa Weinman; and writer Brian Doyle. The exhibit will include calligraphy, photography, painting, book arts, graphic design, prints, pop-up books and writing.

For information, contact gallery coordinator Michele Auger, ext. 3491, or visit www.uml.edu/dept/art.



▲ This work by Abelardo Morell, "Water Alphabet," 1998, a gelatin silver print, will be featured in the Alphabet as Art exhibit opening in November in the University Gallery.

Courtesy of the Artist and Bonni Benrubi Gallery, New York City

Tsongas Center to Host Women's History Conference

"Gender, work and family will be the focus of the 15th annual Women's History Conference on Friday, Nov. 7, from 9 a.m. to 4:30 p.m., sponsored by the Tsongas Industrial History Center. Patricia Cleary, a history professor at California State University, Long Beach, will present the keynote address, "View from the Shop: Commerce, Gender, and Women's Work in Early America." The conference will include large-group presentations, small-group interactive workshops, tours of the Lowell National Historical Park, and other formats that examine relationships among gender, work and family in American history from colonial times to present day. Registration is \$60. For more information, visit www.uml.edu/tsongas or call ext. 5080.

Theatre de l'Oeil to Perform *The Star Keeper*

The Discovery Series next will feature two performances of *The Star Keeper*, a puppet show produced by the Montreal-based Theatre de l'Oeil on Sunday, Nov. 2. The show is appropriate for families with children ages 4 and up. *The Star Keeper* is sponsored by Enterprise Bank & Trust Company. For information, call the Center for the Arts Box Office, ext. 4444.



▲ Pretzel will be featured in Theatre de l'Oeil's production of *The Star Keeper*, Nov. 2 in Durgin Hall.

Robert Langer Will Give 2003 Tripathy Lecture

Robert S. Langer, the Germe-schausen Professor of Chemical and Biomedical Engineering at the Massachusetts Institute of Technology, will give the second annual Sukant Tripathy Memorial Lecture on Thursday, Nov. 13. The reception begins at 3, and the lecture at 3:30 p.m. in Alumni Hall.

Langer's presentation is titled "Polymers for Drug Delivery and Tissue Engineering." He is known as a dynamic and engaging speaker and a world leader in biotechnology.

Langer is a prolific inventor and has nearly 500 issued or pending patents worldwide. He is the author of more than 700 articles and 400 abstracts, and has received countless awards, including the \$500,000 Charles Stark Draper Prize, the world's most prestigious engineering prize.

For more information, contact the Center for Advanced Materials, ext. 3695.



▲ Robert Langer

Diversity and Pluralism Seeks Participation

The Council on Diversity & Pluralism will hold its next meeting on Monday, Nov. 3, in McGauvran 410, at 3:30 p.m. All faculty, staff and students are invited to attend. Light refreshments will be served.

For further information, call the Office of Multicultural Affairs, ext. 4342.

Luncheon to Explore Diversity in the Classroom

The Gender Studies Program and the Council for Diversity and Pluralism are sponsoring a brown-bag luncheon to discuss teaching diversity in the classroom Nov. 3 at 1 p.m. in the Sociology Department in Coburn Hall. For information, contact Prof. Noelle McAfee, gender studies and philosophy, ext. 3912.

Murray to Assess the Patriot Act

Nancy Murray, coordinator of the American Civil Liberties Union's Civil Liberties Task Force, will be on campus to present, "Civil Liberties and the Patriot Act," Thursday, Nov. 13, 11 a.m. to 12:15 p.m. in the O'Leary Library Auditorium. The event is sponsored by the Peace and Conflict Studies Institute and Greater Lowell for Peace and Justice.

Product Stewardship Institute Wins Award

The Product Stewardship Institute, part of the Lowell Center for Sustainable Production, has been recognized for its leadership in product stewardship. The Institute received the National Level Award for Product Stewardship, presented by the North

American Hazardous Materials Management Association (NAHMMMA) at the 2003 Hazardous Materials Management Conference in Kansas City.

The award recognizes a key program or national organization that promotes product stewardship. "Product stewardship" is the principle of taking responsibility to reduce the health and environmental impact of consumer products through the entire life cycle—from design, manufacture and transportation through use and recycling or disposal.

The Product Stewardship Institute, directed by Scott Cassel, helps state and local government agencies establish cooperative agreements with industry and conducts research to solve the most pressing problems associated with particular products. The Institute works cooperatively with all stakeholders, from manufacturers and retailers to consumers and government officials, to develop agreements that increase the collection, reuse and recycling of used products, and that establish sustainable financing systems to reach these goals.

The Institute is currently developing agreements in six product areas: electronics, paint, mercury-containing thermostats, tires, radioactive devices and pressurized gas cylinders. Pilot projects and discussions are underway with leading companies, including Staples, Inc., Benjamin Moore, Hewlett-Packard, Dell, Blue Rhino Corporation, and Worthington Cylinders.

'Wormcycler' Greenhouse Should Have Positive Effect

The Center for Family, Work and Community (CFWC), along with dozens of project supporters, celebrated the grand opening of the "Wormcycler" greenhouse this month. The greenhouse is a major addition to the University's Compost Education and Demonstration Site in the corner of the Riverview parking lot on UML South.

The 17 by 44-foot greenhouse will house the now-famous Red Wiggler worms — the core of CFWC's vermicomposting project, which is recycling university food and yard waste into rich, usable compost.

The rest of the approximately half-acre site is bordered by a chain-link fence and jersey barriers, all of which were reused from this or other sites on campus. The entrance is accented by a flower bed encircled by 100-year-old curb stones that were displaced by other projects on campus, according to assistant project manager Julie Villareal.

The vermicomposting program, coordinated by the CFWC's Villareal and project manager David Turcotte, began as a small demonstration project housed in a utility room in Olney Hall. There, small amounts of food waste from local restaurants were broken down by a few thousand worms over a few days.

Since the composting potential of the earthworms is so great and the worms have multiplied so rapidly, the project needed more space. The worms are capable of reducing the waste to a tenth its size by volume.

Over the past year, the Riverview site has been under ongoing development for this purpose, culminating in the completion of the Wormcycler. According to the project consultant and "worm tamer" Bruce Fulford, owner of City Soil and GreenhouseC-

ompany of Roslindale, the hoop-house structure will be able to handle several tons of recyclable waste, most of which will be provided by Aramark Food Services and the University's Physical Plant Department.

"As it is, we should have about five tons of finished compost by springtime," says Fulford. "Ultimately, if we could expand even more on site, we could probably handle all of the University's annual yard and food waste."

"Presently, the University spends about \$20,000 annually to have this waste hauled to a landfill about 10 miles away," says Turcotte. He is hopeful that the money could be redirected into the management of the site.



▲ Massachusetts State Sen. Steven Panagiotakos joins Julie Villareal of the Center for Family, Work and Community at the grand opening of the "Wormcycler," a greenhouse that will be the centerpiece of the University's Compost Education and Demonstration Site.

"We're planning for the site to become financially self-sustaining," Turcotte says.

One of the challenges to using any mechanized equipment on site is the fact that it's not on the power grid. In order to make on-site power possible, Fulford constructed the greenhouse with exterior pipes protruding over the entrance that could hold photo-voltaic panels that would capture the sun's energy to run necessary equipment.

Portions of the funding for the Wormcycler, and other aspects of the project, were provided by the Massachusetts Executive Office of Environmental Affairs, the Department of Environmental Protection and the City of Lowell.

Villareal says the plan is to use the compost for projects on campus and to make the space available for educational programs with the Lowell Public Schools. They are also considering how they might make it available for non-university projects in the future.



▲ Bruce Fulford, left, consultant for the University's Vermicomposting Project, explains how Red Wiggler worms are recycling yard and food waste at a new facility located in the Riverview Lot. The "Wormcycler" opened in October.

Haiku Highlights the Kerouac Conference; Over 100 Attend



▲ Regina Weinreich, right, author of *Kerouac's Spontaneous Poetics*, was the keynote speaker at this year's Jack Kerouac Conference on Beat Literature, describing Kerouac's extensive use of Haiku as a literary form. Conference coordinator Prof. Hilary Holladay, left, English, says that while Kerouac wrote many novels, he considered himself a poet on a par with contemporary Allen Ginsberg.



▲ Gallery coordinator Michele Auger, shows off the Allen Ginsberg Photo Exhibit to musician and author David Amram during the Kerouac Conference. Amram was on campus to host a showing of the Beat classic, *Pull My Daisy*, for which he composed the score. The exhibit will be on display until Nov. 7 in the University Gallery.

Conference Examines Sustainability as a Benefit to Companies

More than a dozen senior executives from Massachusetts companies gathered at the Strategic Sustainable Positioning working conference hosted by Raytheon Company and the University. Spearheaded by Ed March, special assistant to the Chancellor for industrial partnering, and Jack Luskin, associate director of the Toxics Use Reduction Institute (TURI), the working conference focused on how sustainability can help companies be more attractive to customers and supply chain companies.

Market trend research indicates that suppliers with high-quality environmental profiles are more attractive to customers than those with lower-quality records. The TURI-Raytheon initiative explored

what participants think their needs are and how TURI and the University can help companies incorporate sustainability into their strategic planning processes.



▲ Ralph Mondano, College of Engineering executive-in-residence, makes a point to other participants at the Strategic Sustainable Positioning working conference sponsored by Raytheon Company and the Toxics Use Reduction Institute. At the conference senior executives discussed how sustainability can help companies be more attractive to customers and supply chain companies.

Youngster Hits His Stride with Assistive Technology Device

A 9-year-old New Hampshire boy had a problem walking. Instead of striding normally, with the heel of each foot landing first, he walked on the balls of his feet.

The boy's physical therapist, Liliane Beaudoin, felt that what he needed was some type of feedback device that would train him to break this walking habit.

As luck would have it, her husband worked at Elliot Hospital in Manchester with Shawn Price, a UMass Lowell senior in electrical engineering. She said Shawn has a reputation for being a very resourceful person and her husband advised her to contact him.

"I called Shawn to see if he could help me with my project," Beaudoin says. "The timing was perfect. He needed a project and I needed his skills."

"I was extremely excited when the proposal was approved by his supervisor at school. We met several times through the design and building phases. Creating that device was a very challenging task that included an in-depth study of normal versus abnormal gait pattern."

What Price designed for this Assistive Technology capstone project was a step-sensing feedback device that the boy wore on a belt. The device received input from pressure-sensitive resistive sensors placed under the balls of his feet.

"There was nothing wrong with him neurologically," says Price. "He would just walk on his tiptoes. He had gotten into a bad habit and he needed something to remind him to get his heels down."

Price began working on the project in the fall of 2002. His first design didn't work too well, he said, but the second and final one was a success.

Price's supervisor on the project was Jay Fu, an instructor in the Electrical Engineering Department.

"If the boy walked incorrectly, the device would beep," Fu says. "It's an audible feedback. If he continued to walk incorrectly, the volume of the beep would increase."

"Price," he says, "was one of the best students. He knows what he's doing."



▲ For his senior capstone project, Shawn Price developed an electronic device that has helped this youngster overcome a walking disorder. Sensors on the boy's feet trigger warning sounds that help reinforce training received in physical therapy.

Beaudoin says, "The final product had an immediate, positive effect on my patient. An auditive feedback accompanies an incorrect step. Wearing the device, the young boy was able to walk normally even when disturbed by his brother talking to him. This had never been achieved before."

"I'm quite optimistic regarding the permanent correction of the boy's condition," she says.

Indeed, Price says the boy no longer uses the device because his walking is greatly improved.

"Of course," he adds, "it's not just the device alone. He has been working with the physical therapist for a long time. Giving him a tool to use when he wasn't in the therapist's office was the key."

Alan Rux, technical support associate in electrical engineering, says, "It was one of the better professionally done projects. It looks good and is professionally labeled."

"Shawn's documentation was very good, too. Because of that, it would be easy to reproduce the device if there was a request for another one in the future."

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Galizzi Receives Grant to Study Worker Injuries

investigating the impact of work history on the worker's post-injury employment.

Employers are not legally bound to return an employee to their previous positions even if they are physically recovered from their injuries. Yet, some workers do return. Galizzi wants to find out if there are factors that help explain why—factors like length of employment, the state of the worker/employer relationship, or the worker's attitude toward the work itself. Further, she'll include the impact of injuries on expected income and changes in family life.

Previously, little information was available on on-the-job injuries save the limited data kept through worker compensation. The NLSY79 has expanded the research options. The survey questions have broadened beyond the workplace to include items on such things as the impact of worker injuries on their children.

Galizzi, who is in her fifth year at UMass Lowell, expects that her work will yield several journal articles and perhaps a book on the subject.

—RS

Qualitative Research Network Invites Participation

The next meeting of the Qualitative Research Network will be held Wednesday, Nov. 12, from noon to 1:30 p.m. in the MIL conference room at Wannalancit. Lunch is available.

The Network is sponsored by the Center for Public Health Research and Health Promotion and the Center for Family, Work and Community, along with support from the Research Foundation. Its purpose is to share ideas, methodologies and results, as well as to build awareness of the many interesting qualitative research projects underway at the University. The most recent meeting featured a research presentation by Asst. Prof. Judith Davidson of the Graduate School of Education. Titled "Cuban-American Women's Views of Pregnancy and Prenatal Care," the

research was based on grounded theory, a qualitative research method that develops theory from data and interview material.



▲ Dr. Judith Davidson, second from right, presented her research at a recent meeting of the Qualitative Research Network. With her are, from left, David Turcotte, Center for Family, Work and Community; Prof. Barbara Mawn and Prof. Carole Pearce, nursing; Asst. Prof. Craig Slatin, health and clinical sciences; and graduate student Beth Wilson, regional economic and social development.

Exhibit Seeks to Correct Will and Grace Image



▲ Pat Ould and Pat Gozemba, from left, of the Boston-based History Project, joined Prof. Anne Mulvey, psychology, following their presentation during "Coming Out—Coming Together" activities on campus. Ould and Gozemba shared a photo exhibit, "Windows on the Community," featuring photographs intended to dispel stereotypical images of gay, lesbian, bisexual and transgendered lifestyles such as those shown on programs like *Will and Grace*. Activities were sponsored by the Council on Diversity and Pluralism, Spectrum, the offices of Student Activities and Multicultural Affairs and the Safe Zone Committee.

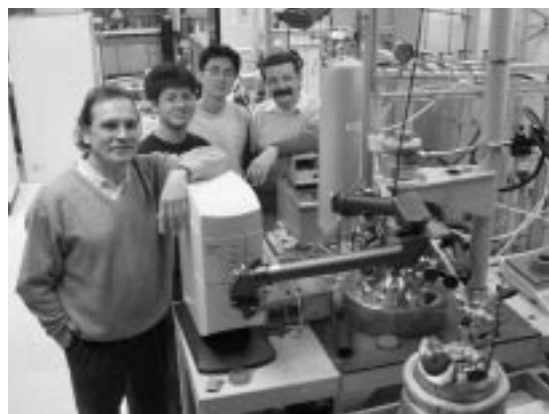
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Faust Adds to Success of New Stent

The material must meet a tight set of specifications at all times, to meet the requirements of a permanently implantable medical device. And the process must be reliable and exactly replicable by the company.

According to Dr. James Barry, vice president of Corporate Research and Technology Development at Boston Scientific and a 1988 alumnus from UMass Lowell's Biochemistry program, "The Boston Scientific/UMass Lowell collaboration was critical in getting the TAXUS product to the market in an expeditious manner. During the early development phase of the project, Boston Scientific identified a proprietary polymer with outstanding biocompatibility in the coronary artery as well as the ability to deliver paclitaxel in doses ultimately found to be highly effective in improving the outcome of treating coronary artery restenosis. However, since the polymer was not commercially available, the company was faced with the task of establishing a supply to meet the needs of a full product launch. That was where Professor Faust entered the picture."

Bob Richard, senior research fellow working in Boston Scientific's Corporate R&D group and UMass Lowell alumnus (1988) from the Polymer Science/Plastics Engineering program, led the polymer commercialization project for Boston Scientific.



▲ Sponsored research by Chemistry Prof. Rudy Faust, at left, has contributed to the performance of a new drug-coated coronary stent developed by Boston Scientific Corp.. in Natick.

According to Richard, "Dr. Faust's worldwide renown in the field of living cationic polymerization led us straight to his door. With his expert guidance we were able to take a lab scale process and transform it into a commercial reality in just under one year. Professor Faust taught us most of what we know about this exciting polymer technology and working with him was extremely rewarding for me personally as well. He did everything from explain the mechanistic aspects of this complex chemistry to working side by side with us in the manufacturing plant.

"Another interesting experience for me was that most of the preliminary small scale work we did was conducted in the same lab where I had conducted my own research while in the Ph.D. program at UMass Lowell, so I felt right at home."

Since completing this important milestone, Boston Scientific and Faust have extended their collaboration to investigate next generation polymers for future drug delivery devices that the company is currently developing. Faust's polymer technology holds possibilities for developing new materials that could be useful in the pioneering of other lifesaving medical devices.

Faust sees many possibilities for polymers in biomedical applications.

"The biomedical companies are changing their view of what is possible," he says. "Rather than just taking a material 'off the shelf' as they did in the past, they are realizing that novel materials can be created to meet their needs."

Faust praises the cooperation with Boston Scientific, and is especially pleased at seeing his research used.

"It's a different kind of feeling," he says. "Not just all the papers you have published and presentations at conferences. You see your work produced, and it benefits society. That is exciting."

—SS

Talk Focuses on Teen Workers

Teens at Risk: Reducing Workplace Hazards," was the topic of a recent seminar co-sponsored by the Center for Industrial Competitiveness and the Work Environment Department. Presenters were Joan Parker, an occupational health consultant and former director of Workplace Safety and

child labor law. It stipulated that a child worker had to be in school at least three months a year, and that children under 10 could not work more than 15 hours a day in a factory.

"We still have a way to go, in spite of that early start," Parker said. Current statutes limit 14- and

15-year-old workers to eight hours of work a day, or a maximum of 48 hours in a week. Several European countries limit students to no more than 20 hours of work per week.

The injury rate for teens is twice that for adults in similar jobs, according to Wegman. In general, teens are poorly trained and supervised, a



▲ Speakers at a recent seminar on teen workers, organized by Dr. William Mass, far right, of the Department of Regional Economic and Social Development, were, from left, Provost John Wooding, Work Environment doctoral candidate Kimberly Rauscher, Dean of the School of Health and Environment David H. Wegman, and, front, occupational health consultant Joan Parker.

Child Labor in the Massachusetts attorney general's office; Dr. David Wegman, dean of the School of Health and Environment; Dr. John Wooding, provost; and Kimberly Rauscher, doctoral candidate in Work Environment.

While at the attorney general's office, Parker was responsible for enforcing the state child labor laws and directing criminal investigations related to workplace fatalities and serious injuries. In 1996, Parker led the attorney general's task force to rewrite the state child labor laws.

Both Wegman and Wooding have lengthy and extensive research and advocacy experience related to occupational health. In 2001-2002, they served with Parker on the Massachusetts Young Worker Initiative Task Force.

In 1847, Massachusetts was the first state in the country to enact a

situation made more troubling because 85 percent of students now in high school will have a job at some point before graduation.

Data suggest that teen workers are essential as low-paid employees willing and able to work at jobs and times that adults refuse. Additionally, teen wages may contribute significantly enough to their household's income to blunt any parental outrage at violations of existing child labor laws.

Proposed legislation introduces civil penalties for non-compliant employers, because having only criminal penalties to impose, as is now the case, may contribute to lax enforcement. The proposed law includes a revision of the work permitting system, required supervision of teens working after 8 p.m., and restricting youth under 18 from working in a job that requires carrying a firearm.

Center for Sustainable Production Brings European Chemical Experts to U.S.

The UMass Lowell Center for Sustainable Production organized a one-week visit of European chemical experts to the United States to discuss the need for policy changes to protect public health and the environment. The group participated in legislative and agency briefings, media roundtables and business and non-profit discussions in Washington, D.C., San Francisco, Chicago and Boston from Oct. 20 to 28.

During the past decade, European countries have proposed ambitious policies in response to the lack of testing and public data on chemicals in commerce, the high burdens on governments to take preventive actions and growing evidence of the impact of toxic substances on public health and the environment. The European Union is considering sweeping new chemical legislation—Registration, Evaluation and Authorization of Chemicals

(REACH)—that will fundamentally change the way companies are required to manage hazardous chemicals and likely set controversial new standards among producers and users world-wide.

"This is the most far-reaching piece of environmental legislation in Europe in the past 30 years," says Joel Tickner, project director of the Center for Sustainable Production. "It addresses major limitations in current regulatory programs for

chemicals management that presume most chemicals on the market safe until proven harmful."

The visit by the diverse group of high ranking European officials—the architects of the legislation and policies in the European Member States—was designed to promote an international dialogue and enable an investigation of opportunities for innovation in policies, technologies and products in the United States.

TURI Fetes Community Grant Winners at State House

The six recipients of the Toxics Use Reduction Networking (TURN) grants were honored recently at a State House event. The Toxics Use Reduction Institute (TURI) has sponsored the grant program for the past eight years and has funded nearly 60 projects in that time dealing with various aspects of toxics in the community.

"We're working on teaching people that there are safe alternatives," said Sen. Pamela P. Resor, vice chair of the Joint Committee of Natural Resources and Agriculture. "TURN plays an important role in informing citizens and municipalities about toxics and available alternatives."

The six projects awarded this year are:

- Pioneer Valley Project in Springfield worked to integrate toxics use reduction into its ongoing work to redevelop abandoned houses into affordable housing.
- Center for Ecological Technology in Berkshire County educated Pittsfield residents, municipal officers, schools, daycare centers, landscapers and retailers about contamination and adverse health effects caused by pesticide use.
- Codman Square Health Center in Dorchester and their partners educated residents about environmental toxins and developed a priority setting process to assist

residents in taking future action on environmental issues in the community.

- The Westwood and Walpole Boards of Health developed a regional workshop to introduce the benefits of toxics use reduction to local businesses.
- After sanitation workers experienced two medical emergencies resulting from the disposal of household hazardous waste, the Town of Natick developed a program to increase community awareness of the dangers of disposing of toxic chemicals in the trash.
- Building on four successful statewide toxics use reduction

training sessions for health department staff and officials in 2002, the Massachusetts Health Officer's Association provides hands-on training in inspecting municipal facilities.

"Concerned citizens do make a difference acting as catalysts for change in their communities," said Rep. William G. Greene, Jr., vice chair of the Joint Committee of Natural Resources and Agriculture. "The seed money from the Institute has provided support and opportunity to keep momentum, but there is a lot more work to be done."

Food and Fun Featured at Family Day

Activities, music and food galore filled the UML South quadrangle during the annual Family Day celebration on Oct. 4. The event—which featured live musical performances, caricature artists, pony rides, antique photos, a giant inflatable slide, crafts and more—attracted members of the UMass Lowell community, students and their families. The fun-filled day kicked off with a welcome by Chancellor William Hogan and a performance by the UMass Lowell Marching Band. More than 30 clubs participated in the event by offering a variety of food and activities for all ages.

Family Day is sponsored by the UMass Lowell Activities Commission and Residence Hall Association, with the support of several other offices on campus.



▲ From left, Student Government Association Officers Heather Makrez, Matt Morand and John Harrison with their friend Rachel Errandi, front, enjoy the activities at Family Day.



▲ Dean of Student Life Larry Siegel enjoys some of the culinary delights prepared by one of the many student clubs that participated in Family Day.



▲ Roving artist "Lucky" impressed onlookers with his juggling prowess.



▲ The Marching Band entertained the crowds with rousing music thanks to the efforts of Dan Lutz, director of University Bands; Mike Reidy, a student member; and Deb Huber, assistant director.

Parker Lectures Offer Poe Portrayal, Tribute to Composer Chadwick and Cuba Film

Norman George brings his nationally acclaimed portrayal of Edgar Allan Poe, America's most haunting literary figure, to Lowell on Sunday, Nov. 2 at 2 p.m. in a show at the Lowell High School Auditorium, 50 Father Morrisette Blvd. *The New York Times* described George's tour-de-force performance as "the nearest thing to Poe in the flesh."

The following Sunday, Nov. 9, at 2 p.m., historian Judith Ranta offers a slide-talk on Native American mill worker and author Betsey Chamberlain. The presentation explores life and writings of Chamberlain (1797-1886), who was born in New Hampshire and worked in the Lowell mills. The program is scheduled for the Visitor Center of Lowell National Historical Park, 256 Market Street.

The Lowell Philharmonic Orchestra and Lowell Opera Company team up on Friday, Nov. 14, at 8 p.m., for a tribute to Lowell composer George Whitefield Chadwick and an English version of Act IV of Mozart's "The Marriage of Figaro" at the Butler Middle School Auditorium, 1140 Gorham Street.

Estate planning is the topic on Saturday, Nov. 15, at 2 p.m., at the Pollard Memorial Library, 401 Merrimack St. Robert Lawlor will introduce and review estate-planning techniques, talking about various planning tools and the benefits of drafting a customized estate plan.

Two travelogues fill out the November schedule, with "The Misty Isles of Scotland" by Tom Sterling on Sunday, Nov. 16, and "Cuba" by John Holod on Sunday, Nov. 23. Both programs begin at 2 p.m. at Lowell High School Auditorium. Sterling's film takes viewers on a tour of the Skye and the Orkney Islands, while Holod's film explores the history and culture of the largest island in the Caribbean.

The Parker Lectures, established in 1917, are presented by the Moses Greeley Parker Lectures Committee in cooperation with UMass Lowell, the City of Lowell, Lowell National Historical Park, Lowell High School and Pollard Memorial Library.

For information on these programs or to obtain copies of the complete Parker Lectures schedule, contact Paul Marion, director of Community Relations at x3107 or Paul_Marion@uml.edu.

Youth Programs Face Cutbacks

Youth service programs in Lowell face severe cutbacks in funding, a situation that is affecting opportunities for young people and also has implications for public safety.

Presenters and participants debated these issues at a breakfast conference sponsored by the Center for Family, Work and Community (CFC) and led by Prof. Linda Silka, CFC co-director.

The conference opened with a research report based on the work of teams of high school and graduate students in the summer of 2003. The project was funded by the UMass Lowell Committee on Industrial Theory and Assessment and teams were supervised by CFC Program Manager Brenda Bond.

The students collected information through survey results, interviews with local providers and



▲ Youth service programs in Lowell have been deeply affected by cutbacks in spending, according to research conducted by UMass Lowell students under the direction of Brenda Bond, left, program manager in the Center for Family, Work and Community. Palak Mahta, graduate student in community social psychology, led one of the teams and reported on the research results

youth programs, according to Gregg Croteau, director of UTEC, the United Teen Equality Center.

"All of us who do street outreach know that the worst time for teen violence and crime is between 2 and 6 p.m.," said Croteau. "That's the time youth programs are needed. And we

can't just make up the funding from other sources — every kind of funding is reduced, including private donors."

Rep. Thomas A. Golden, Jr., spoke about the political issues involved.

"Unfortunately, the legislature considers these youth programs as 'extras,'" said Golden. "The three most highly supported areas are K-12 education, public safety and economic development. People just don't see youth programs as part of these, even though the cutbacks have obvious implications for all three."

Golden encouraged those who care about youth programs, and human services in general, to develop a consistent, repeated message and "take it to the streets" to raise public awareness, as well as calling their legislators.

"With all the budget cuts, I expected the phone to be ringing off the hook in September," he said. "It didn't. You have to keep making the point, during good times and bad, that these programs are essential and must not be cut."



▲ Rep. Thomas Golden, right, encouraged participants at the conference, sponsored by the Center for Family, Work and Community, to contact legislators and raise public awareness about the effects of budget cuts on youth programs. Gregg Croteau, left, director of UTEC, the United Teen Equality Center, and Andy Chandonnet, youth program manager at the YWCA, described the impacts on their programs.

officials, and analyzing information from Web sites. They reported on the effects of cutbacks and detailed strategies that agency leaders have adopted to manage services.

The cuts have reached devastating levels. Andy Chandonnet, youth program manager at the YWCA, calculates a 67 percent loss of funding over recent years.

"We went from six full-time staff assisted by eight paid peer leaders, working part time, to an equivalent of 1.3 full-time staff," he said. "Many programs have been canceled outright.

An impact on public safety is an unforeseen consequence of reduced

Robots That Have Been to War Visit Campus

A robot that worked well in the lab might not work at all at the World Trade Center's Ground Zero, where features were covered by masses of loose paper and camouflaging dust.

A robot that works in the lab won't work in Afghanistan unless it can be carried up a mountain on a soldier's back.

A robot that works in the lab, but requires a small truckload of guidance and control equipment, will not be useful in Iraq.

Faculty and students in computer science learned a lot more about the practical, real-world functioning of robots from recent guest speakers, at events organized by Asst. Prof. Holly Yanco for undergraduate and graduate students in computer science.

Mark Micire, president and CEO of American Standard Robotics, was a graduate student at the University of South Florida when he participated in robot-assisted search and rescue at the World Trade Center following the terrorist attack.

Robots have proved useful in search and rescue situations, as they can venture into spaces too small or dangerous for people or dogs. But Micire said the conditions at the Trade Center were much more challenging than any previously encountered.

"Imagine your robot trying to move over the shifting surface of paper," he said. "And in the twisted passages of the remains, it was hard for the

robot operators to tell up from down, and robots sometimes tipped over." Also, in the rush to hunt for survivors, teams had to set up and deploy their robots within minutes, or the rescue crews would move on to another location.

"PackBot"—a tough, portable robot that has been deployed in Afghanistan and Iraq—came to campus this month and was demonstrated by Col. Bruce Jette, U.S. Army.

Jette directs the Rapid Equipping Force, what he

calls "geeks at war," a group that evaluates operational problems in the field and fixes them. After observing a soldier use a rope and grappling hook to check a cave, Jette proposed evaluating the use of robots to find the enemy in caves.

"It turned out to be, 'How I spent my summer vacation,'" said Jette. "We had 30 days from the idea to the deployment, and the entire pilot mission was completed in 90 days."

The PackBot, made by iRobot in Burlington, uses up to 12 cameras to provide visual information to troops and can operate in rough areas such as Afghanistan, where "the terrain has two features: horizontal and vertical." It also can trip mines and trip-wires.

Jette criticized research that pursues "sexy" features such as mind-controlled robots but neglects important functional elements such as portability of the robot and light-weight controls. The PackBot weighs 40 pounds with batteries and the controls fit onto a standard ammunition belt, with a helmet-mounted visual display eyepiece.

The controls can be used with multiple types of robots and the system can run in the dark with infrared. Currently, six of the robots are deployed in Iraq and four in Afghanistan.



▲ Computer science students take a close look at the PackBot, a robot that has been used in war zones to search caves. The front arms rotate for traction on steep surfaces.



▲ Col. Bruce Jette shows the visual display eyepiece used in guiding the robot in the field. All the controls needed fit on an ammunition belt, and the robot itself is portable.

Women's Basketball Team 'Whoops' It Up After a Whale Watch

Members of the women's basketball team went whale watching out of Gloucester recently but the sighting that thrilled them the most occurred after their boat had returned to land.

Joan Lehoullier, senior associate athletic director, says that when the team disembarked, the person working in the ticket booth pointed to a woman sitting on a nearby bench and said she was "someone famous."

The team discovered that the famous person was actress Whoopi Goldberg, who was in town to visit a friend who owns a restaurant there. Goldberg readily agreed when the players asked if they could have their picture taken with her.

"She was very nice and very friendly," says Lehoullier.

After the photo was taken, one of the players presented Gold-

berg with a UMass Lowell t-shirt, and the actress said she would try to wear it some time on her new television show.

As for the whales, Lehoullier says they finally did see some after spending a long time searching through the morning fog.

"But I think a lot of the players were more excited about seeing Whoopi than they were about seeing whales," she says.



▲ Members of the women's basketball team went on a whale watch out of Gloucester recently but their biggest sighting wasn't a whale. It was Whoopi Goldberg, who was in town to visit a friend. Goldberg agreed to have her photo taken with the team, whose members also presented her with a UMass Lowell t-shirt.

Raymond Mungo Recalls Sixties Campus Unrest

Raymond Mungo, author of the 1970 underground classic *Famous Long Ago: My Life and Hard Times with Liberation News Service*, spoke at O'Leary Library on Oct. 20 as part of the Parker Lectures series in Lowell. Mungo's book recounts his days in the mid-1960s as



▲ Author and Sixties student movement leader Raymond Mungo

the editor of the Boston University News and later co-founder of the Liberation News Service in Washington, D.C. —an era marked by anti-Vietnam War protests and emergent counterculture uprisings. Fellow activist and poet Veronica Porche of Vermont joined the California-based author in the program, reading several poems interspersed with her recollections of the tumultuous times. Prof. Dean Bergeron and several students from his Radicalism in American History course engaged in a lively dialogue with the speakers, seeking to make connections between the Sixties' campus climate and that of today. Also attending was film producer Jeff Levy-Hinte, who is making a film version of Mungo's memoir for Antidote Films. Library Director Patricia Noreau sponsored a reception for the author before the program.

First Savoeun Chea Scholarships Awarded

A new endowed scholarship fund honors the memory of Savoeun Chea, a young woman who had participated in the River Ambassadors Program in the Center for Family, Work and Community. She graduated from Lowell High School and was about to enter the nursing program at UMass Lowell, when she was killed in a car accident in the summer of 2001.

Four \$1,000 scholarships will be awarded each year to UMass Lowell undergraduates or high

school seniors, who are immigrants or refugees, and who exemplify Savoeun Chea's spirit of public service. Applicants must submit essays about their hopes and aspirations.

The first scholarships were awarded in a ceremony hosted by the Center for Family, Work and Community. The recipients and their majors are Chan Chea, nursing; Nary Chan, sociology; Barbara Le, graphic design; and Christi Panyanouvong, biochemical engineering.



▲ The first Savoeun Chea scholarships were awarded to UMass Lowell undergraduates for their dedication to public service. The endowed scholarship fund is directed by the Center for Family, Work and Community (CFWC), where Savoeun Chea was a volunteer. Center staff and the recipients are, from left, Khan Chao, River Ambassador Program (RAP) manager; Prof. Linda Silka, CFWC co-director, the scholars—Chan Chea, Nary Chan, Barbara Le, and Christi Panyanouvong; and Sokny Long, assistant RAP manager.

Continued from Back Page

Calendar of Events

Tuesday, Dec. 2

Performance, STARTS program, "Tikki Tikki Tembo," performing arts for grades K-3, 9:30 and 11:30 a.m. Tickets: \$5. Durgin Concert Hall. For information and reservations, call the STARTS hotline (978) 934-4452.

Wednesday, Dec. 3

Women's Basketball, vs. Stonehill College, 5:30 p.m., Costello Gym. For more information, call (978) 934-HAWK.

Men's Basketball, vs. Stonehill College, 7:30 p.m., Costello Gym. For more information, call (978) 934-HAWK.

Sunday, Dec. 7

Performance, Discovery Series, "The Gizmo Guys," great for all ages,

2 and 4 p.m. Tickets \$10, group discounts available, Durgin Concert Hall. For information or tickets, call the Center for the Arts (978) 934-4444.

Tuesday and Wednesday, Dec. 9 & 10

Performance, STARTS program, "Laura Ingalls Wilder: Growing Up on the Prairie," performing arts for grades 2-5, shows at 9:30 and 11:30 a.m. Tickets: \$5. Durgin Concert Hall. For information and reservations, call the STARTS hotline (978) 934-4452.

Tuesday, Dec. 16

Performance, STARTS program, "The Tailor of Gloucester," performing arts for grades K-3, 9:30 and 11:30 a.m. Tickets: \$5. Durgin Concert Hall. For information and reservations, call the STARTS hotline (978) 934-4452.

UMass Lowell Raises Funds for Disabled Student in Benefit Softball Game

Staff and students recently put down their pencils and books and picked up balls and gloves to help one of their own.

The University sponsored a charity softball game between faculty and staff and residence life students on Oct. 18 in Dracut to raise funds for a disabled student. The event, which featured a free barbeque and raffles in addition to the competition, has raised over \$1,200 to date. It was sponsored by several UMass Lowell departments, led by the Office of Student Affairs, with support from Greater Lowell businesses, including ARAMARK, the University's food-service provider which donated the food and paper goods.

Tony Koumantzelis, who runs the University's recycling program,

decided to spearhead the event after learning from Student Life Dean Larry Siegel of the financial challenges facing junior Rob Sampson of Randolph. The criminal justice major has been paralyzed from the chest down since sustaining a neck-breaking fall four years ago. Sampson and his family are struggling to cover the cost of home modifications, special equipment, medical supplies and a modified vehicle to help him regain some of his independence.

Koumantzelis said dozens of people showed up at the softball game to join in the fun and lend their support to the fund-raising effort.

"We encouraged anybody with a glove to show up. The more the merrier," he said. "If you've got a spot in your heart, please consider making a donation to the Robert Sampson Fund."

Such charitable efforts are not unusual for Koumantzelis, who has organized a University-wide drive for toys to distribute to needy children during the December holiday season for the past seven years. Donations are still being accepted. Anyone interested in contributing should contact Koumantzelis at extension 4390 or 978-265-2664.



▲ University staff and students organized a charity softball game to benefit junior Rob Sampson, foreground. Key players, standing, from left, are Tony Koumantzelis, Matt Moran, Marge Sampson (Rob's mother), Jerry Ryan and Larry Siegel.

Moser Presents Workshop on Effective Business Speaking

Prof. Marty Moser, management, recently presented a one-hour workshop entitled "The Infrastructure of a Professional Business Presentation" for the *Women in Business* series, sponsored by Enterprise Bank and Trust Company of Lowell. The interactive workshop provided participants with the knowledge needed to prepare an effective presentation including: how to articulate basic ideas, organize and then present them.

"It was our pleasure to have a professional of his caliber work with us," said bank vice president and series coordinator Dale Marcy. "Some attendees are coming back to work together, using his technique, to perfect actual presentations."

Moser was introduced to the audience by Heather Greenwood,



▲ Prof. Marty Moser, management, recently spoke about effective business presentations to an audience of the *Women in Business* series at Enterprise Bank of Lowell.

branch supervisor for the Enterprise Bank in Westford and 2002 alumna of business administration.

Promotions & Appointments

Promotions

Sandra Daigle, coordinator of admissions and records processing in Undergraduate Admissions, from coordinator of guest relations.

Kathleen Hennessy, clerk IV in the Graduate School of Education, from library assistant I in Lydon Library.

Maria Shortsianitis Panagakis, director of Information and Donor Services in University Advancement, from manager of Gift Operations.

Heather Tziotziouras, staff assistant I, procurement in the Procurement Office, from accountant III.

Appointments

David J. Coffee, emergency response/worker health educator II in the Research Foundation, from emergency response at Elliot Hospital Service Health Primary Care in Manchester, N.H.

Patricia L. Coffey, training project coordinator (03) from Center for Security, Safety and Society.

Robert I. Ellis, WUML program assistant in Communications and Marketing, from WCCM radio.

Jacqueline Hawk, corporate outreach coordinator in Continuing Studies and Corporate Education, from corporate project manager (03).

Debra R. Leary, major gifts coordinator in University Advancement, from coordinator of Gift Planning at Phillips Academy.

Marcia Strauss, parent liaison in the GearUp Project, from Portuguese teacher translator at the Language School International in Acton.

Ekaterina Vorotnikova, post doctoral in the Department of Biology, from 03 to 01.

Xiao Jin Xu, senior research technician in Health and Clinical Science, from software engineer at Motorola Canada Software Center.

Note Worthy

The Psychology Department faculty has bestowed the 2003 Departmental Teaching Award on **Assoc. Prof. Joan Cannon**, who has served the University for 33 years as a member of both the faculty and the administration.

During those years, she has taught a number of courses at the undergraduate and graduate levels.

She recently developed an on-line course in personality psychology and an accompanying book, titled *Personality Psychology: Insights, Issues, Case Histories and Applications*. She also serves as faculty advisor to Psi Chi, the National Honor Society in psychology.

Prof. Melissa Pennell of the English Department has published a text, titled *The Student Companion to Edith Wharton*, which provides an introduction to Wharton's fiction for readers who may know her best as the author of *Ethan Frome*.

Published by Greenwood, the book places Wharton within the context of her times, and discusses the ways in which she was shaped by and reacted to the culture around her.

Earlier this year, Pennell conducted a Learning in Retirement Association (LIRA) program entitled, "Art, Music, Museums and Murder."

"We spent time exploring how communities of artists and musicians can form closed worlds that lend themselves to mystery fiction," she says. "Often the detective must have or gain specialized knowledge from that world to be able to solve the mystery."

Allyn and Bacon has issued the fifth edition of *Introduction to Early Childhood Education: Preschool Through Primary Grades*, authored by Prof. **JoAnn Brewer** of the Graduate School of Education.

The text has been adopted by some 280 colleges and universities.

The Shuttle is published by the Publications Office, UMass Lowell, One University Avenue, Lowell, MA 01854. Tel. 934-3223.

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The University of Massachusetts Lowell is an Equal Opportunity/Affirmative Action, Title IX, H/V, ADA 1990 Employer.

Calendar of Events

Wednesday, Oct. 29

Men's Soccer, vs. St. Anselm College 6 p.m. Cushing Field. For more information, call (978) 934-HAWK.

Thursday, Oct. 30

Performance, Ensemble Series, chamber orchestra, Dr. Kay George Roberts, director, 7:30 p.m., Durgin Concert Hall. For information, call (978) 934-3850.

Saturday, Nov. 1

Hockey, vs. Northeastern University, 7 p.m., Tsongas Arena. For more information, call (978) 934-HAWK.

Sunday, Nov. 2

Performance, Discovery Series, "The Star Keeper," 2 and 4 p.m. Best for ages 4-10. Tickets \$10, group discounts available, Durgin Concert Hall. For information or tickets, call the Center for the Arts (978) 934-4444.

Monday, Nov. 3

Performance, STARTS program, "The Star Keeper," performing arts for grades K-3, 9:30 and 11:30 a.m. Tickets: \$5. Durgin Concert Hall. For information and reservations, call the STARTS hotline (978) 934-4452.

Seminar Series, "Working on the Edge: The Lives of IT Professionals," Paula Rayman, RESD, noon to 2 p.m., O'Leary Library, Room M, 5th floor. For information, call RESD (978) 934-2900.

Faculty Senate Meeting, 3:30 p.m., Alumni Lounge. For more information, contact AnnMarie_Hurley@uml.edu.

Wednesday, Nov. 5

Flu Shot Clinic, \$20 fee, 11 a.m. to 3 p.m., Cumnock Auditorium, UML North, McGauvran 341, UML South. For more information, call Health Services (978) 934-4991.

Thursday, Nov. 6

Lecture, "Obscenity, Birth Control, and the Comstock Law," presented by Smith College Sydenham Clark Parsons Prof. Helen Horowitz, 7 p.m., O'Leary Library 222. For more information contact (978) 934-4275 or chad_montrie@uml.edu.

Friday, Nov. 7

Conference, "15th Lowell Conference on Women's History," explores the significance of gender throughout American history, includes large-group presentations and small-group interactive workshops, Tsongas Industrial History Center, Boott Cotton Mills. To receive a brochure and registration form, email Ellen_Anstey@uml.edu or visit: www.uml.edu/tsongas/calendar.htm

Sunday, Nov. 9

Parker Lecture Series, "Betsey Chamberlain: Native American Mill Worker," slide-presentation that explores the life and writings of a Lowell "mill girl," 2 p.m., Lowell National Historical Park Visitor Center, 256 Market Street. For information or a schedule, contact (978) 934-3107 or Paul_Marion@uml.edu.

Monday, Nov. 10

Seminar Series, "Between a Rock and a Hard Place: Some Observations on Labor and Globalization," Robert Forrant, RESD, noon to 2 p.m., Kitson 208. For information, call RESD (978) 934-2900.

Tuesday, Nov. 11

Hockey, vs. Bentley College, 7 p.m., Tsongas Arena. For more information, call (978) 934-HAWK.

Wednesday, Nov. 12

Exhibit Reception, "November Light," by Gail Milligan, '04, features mixed media sculptural boxes, 5 to 7 p.m., Dugan Gallery, exhibit runs through Dec. 3. For more information, call (978) 934-3491.

Thursday, Nov. 13

Lecture, "Civil Liberties and the Patriot Act," by Nancy Murray, coordinator, Civil Liberties Task Force, American Civil Liberties Union, 11 a.m. to 12:15 p.m., O'Leary 222. For more information, call the Peace and Conflict Studies Institute (978) 934-5014.

Lecture, "Polymers for Drug Delivery and Tissue Engineering," by Robert S. Langer, Germeshausen Prof. of Chemical and Biomedical Engineering, MIT, 3:30 p.m., Alumni Hall. For more information, call the Center for Advanced Materials (978) 934-3695.

Saturday, Nov. 15

Women's Basketball, vs. St. Thomas Aquinas, 1 p.m., Costello Gym. For more information, call (978) 934-HAWK.

Men's Basketball, vs. Adelphi, 4 p.m., Costello Gym. For more information, call (978) 934-HAWK.

Monday, Nov. 17

Performance, STARTS program, "FLY Dance Company," performing arts for grades 4-8, 9:30 and 11:30 a.m. Tickets: \$5. Durgin Concert Hall. For information and reservations, call the STARTS hotline (978) 934-4452.

Seminar Series, "Emergence of Entrepreneurial Policy: What It Is, Where It Came From & Politics of Policy," David Hart, Harvard University, noon to 2 p.m., O'Leary Library, Room M, 5th floor. For information, call RESD (978) 934-2900.

Wednesday, Nov. 19

Exhibit Reception, "The Alphabet as Art," multi-media group exhibit, curated by UML Prof. of Graphic Design Karen Roehr, 2 to 4 p.m., gallery talk at 3 p.m., University Gallery, McGauvran Student Center, exhibit runs through Dec. 10. For more information, call (978) 934-3491.

Friday, Nov. 21

Women's Basketball, vs. Caldwell, 7 p.m., Costello Gym. For more information, call (978) 934-HAWK.

Saturday, Nov. 22

Hockey, vs. Boston University, 7 p.m., Tsongas Arena. For more information, call (978) 934-HAWK.

Sunday, Nov. 23

Women's Basketball, vs. West Chester, 1 p.m., Costello Gym. For more information, call (978) 934-HAWK.

Monday, Nov. 24

Seminar Series, "Leveraging Global Production Networks for Industrial Upgrading: How the Global Value Chains Framework Can Help," Tim Sturgeon, Industrial Performance Center, MIT, noon to 2 p.m., O'Leary Library, Room M, 5th floor. For information, call RESD (978) 934-2900.

Performance, Ensemble Series, percussion, Prof. Jeffrey Fischer, director, 7:30 p.m., Fisher Recital Hall. For information, call (978) 934-3850.

Tuesday, Nov. 25

Women's Basketball, vs. Franklin Pierce College, 5:30 p.m., Costello Gym. For more information, call (978) 934-HAWK.

Men's Basketball, vs. Franklin Pierce, 7:30 p.m., Costello Gym. For more information, call (978) 934-HAWK.

Performance, Student Recital, a tribute to the Grateful Dead, 7:30 p.m., Durgin Concert Hall. For information, call (978) 934-3850.

Friday, Nov. 28

Hockey, vs. Rensselaer, 7:00 p.m., Tsongas Arena. For more information, call (978) 934-HAWK.

Monday, Dec. 1

Seminar Series, "Globalization, Trade & Labor Policy," Thea Lee, Public Policy Department, AFL-CIO, noon to 2 p.m., O'Leary Library, Room M, 5th floor. For information, call RESD (978) 934-2900.

Faculty Senate Meeting, 3:30 p.m., Alumni Lounge. For more information, contact AnnMarie_Hurley@uml.edu.

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Did you know...

that the Kerouac Writer-in-Residence program brings a different author to campus each year, to teach writing courses and give readings of his or her works?

For Extra Credit...

Name one of the authors.
Recent authors have included Andre Dubus III, Betsy Cox and Jill McCorkle.



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